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§ 197. Fresh Water Algae. III.

In offering the following list of Fresh Water Algae I present the work of the past twelve months. It embraces upward of 150 forms new to the United States and 24 more entirely new species. The former possess features more or less marked, which readily reconcile them with the diagnosis of European plants. I will not say, I consider all of them distinct species. The more I see, the clearer my conviction that there are many forms accepted as species, which are merely varieties of development of the same plants. For the present, I not only accept these, but have gone so far as to add 24 more to the already very large number described by European authorities. The most of these new species are very distinct; for two I found no congeners: the one I call *Kalodictyon*, the ornamented net, being a net-like growth, with the threads strung with forms as of wrought pearl: the other I have named *Poterophora*, urn bearer, in view of the urn-like forms borne upon the filaments. Doubts have been expressed, whether this is a normal form of an Alga. The idea of a prothallus of a moss has been suggested, but it is unlike anything of the kind described, moreover, the urn forms put forth gemmae from the open ends; these are at first spherical, then they divide by a transverse membrane, elongate, and add cell to cell, reproducing filaments like the mother plant.

The larger portion of the plants enumerated were collected in Northampton and adjoining counties of Pennsylvania; others are credited to other localities. I acknowledge gratifying aid received in collections made by H. W. Ravenel in South Carolina, by J. Donnell Smith in Florida, by T. S. Brandegee in Colorado, by C. L. Anderson in California, and by others. C. F. Austin, of New Jersey, in his indefatigable bryological researches during the past ten years, laid by many specimens not belonging to his special departments; these he presented for examination. Among them were found a number of very interesting plants, new to this country. One from the White Mountains is worthy of a special note. It is a plant of some popular fame in the Alpine regions of Europe, known as the "Veilchen Stein" or as "Veilchen Moos" (Violet Stone, or Violet Moss). It forms a thin stratum on stones, which when dry is inodorous, but when moistened emits the delightful fragrance of violets. In the list below it appears as *Chroolepus iolithus*.

I add a couple to the list that are not quite new; plants that were discovered by Bailey about 25 years ago, but have not been noticed since.

The occasional initials in brackets indicate the collector's name.
BETHLEHEM, PA., Nov., 1877. FRANCIS WOLLE.

PHYCOCHROMOPHYCEAE.

1. **Chroococcus**, Naeg. — *Ch. decorticans*, A. Braun. Hab. Submerged timbers.

Ch. rubrapunctus, n. sp. *C. aquatica*, cellulis singulis vel

aggregatis in ligno submerso; cellulis simplicibus, globosis; membranula gelinea tenui cinctis; cytoplasmate flavo-aurantiaco, homoganeo, nucleo amplo, auranteo-rubro. Cellul. .00008"—.0001".

Not infrequent on boarded sides of basins and old timbers.

2. **Gloeocapsa**, Ktz.—Gl. fenestralis Ktz. Greenhouses.—Gl. conglomerata, Ktz. On filaments of old Cladophora, Colorado. (T. C. Porter.)—Gl. rupestris, Ktz. Wet rocks, Little Falls, N. J. (C. F. A.)

3. **Anacystis**, Meneghini.

A. glauca, n. sp. A. thallo glauco-aerugineo; strato indeterminato fundis calcariorum fontium; cellularum familiis oblongis vel ovalibus, saepe non distincte limitatis; tegumentis tenuibus; cellulis minimis et numerosissimis, pallide aeruginosis. Cellul. .00008"—.0001". Fam. .005" plus minus.

4. **Gloeotheca**, Naeg.—Gl. confluens, Naeg. Calcareous springs, Newton, Mass. (W. G. Farlow.)—Gl. granosa, Rabenh. Wet rocks.—Gl. distans, Stiz. Dripping rocks.

5. **Leptothrix**, Ktz.—L. parasitica, Ktz. On old culms in swampy places.—L. ochraceum, Thuret. Small pools.—L. muralis, Ktz. Damp walls; common in greenhouses.—L. caespitosa, Ktz. Calcareous springs.—L. rigidula, Ktz. Aquariums.

6. **Hypheothrix**, Ktz.—H. coriacea, *var.* Meneghinii, Ktz. Damp earth, N. J. (C. F. A.)—H. pallida, Ktz. Forms a reddish-brown stratum on dryish ground, N. J. (C. F. A.)—H. turicensis, Naeg. Moist rocks.

H. bullosa, n. sp.—H. thallo subsphaerico, dilute flavo, flavo-albo, gregario; filamentis tenuibus, simplicibus, dense intricatis, globis cavis tenacissimis formatis; globis 2-4 lineas diametro; trichomatibus pallide aerugineis, saepius pallescentibus, .00006", diam.; vaginis achrois, .00016, raro .00024".

Shallow sluggish waters, often intermingled with a vagarious form of Lyngbia Wollei, Farl. Susquehanna River, Harrisburgh, Oct., 1877.

H. Aikenensis, n. sp.—H. filamentis tenacibus, curvatis, densissime intricatis, in stratum plus minus expansis, olivaceo-viridibus; trichomatibus (interne) passim interruptis, saepius moniliformibus (praesertim in speciminibus in carbolico acido tempore brevi asservatis) articulis diametro subequalibus vel duplo longioribus, granulatis; cytoplasmate laete aerugineo; vaginis sat amplis, achrois, pellucidis. Diam. cum. vag. .00032"—.00044"; sine vag. .00014"—.00018".

Sluggish waters, Aiken, S. C. (H. W. R.)

7. **Beggiatoa**, Trevisan.—B. niveum, Rabenh. Sulphur Spring, Niagara Falls, 1876.

B. hinnulea, n. sp.—B. strata colore dilute hinnulea, floccosa, caespitosa, fluctuans, 2-3 lineas crassa; filamentis flexilibus, contractilibus, evaginatibus, indistincte articulatis, 6-9 lineas longis, .00005"—.00007" crassis, hyalinis, subachromatibus, cytoplasmatibus obscure granulosis.

Trenches for warm waste water from steam engines.

8. **Oscillaria**, Bosc.—O. violacea, Wallr. Conservatories.—O.

Cortiana, Ktz. Common in hot waters.—*O. leptotrichia*, Ktz. Ponds.—*O. elegans*, Ag. Quiet waters.

9. **Phormidium**, Ktz.—*Ph. vulgare*, *var. publicum*, Ktz.—*Ph. Lyngbyaceum*, Ktz. Old logs partially submerged.—*Ph. cataractum*, Rabenh. Waterfalls, Mill-dams.—*Ph. olivaceum*, Rabenh. Small ponds.

10. **Lyngbya**, Ag.—*L. Cincinnati*. Colorado. (T. S. B.)

11. **Hydrocoleum**, Ktz.—*H. phormidioides*, Bulnh. Sphagnum swamps.—*H. tinctorum*, A. Br. Aquatic plants.—*H. homoeotrichum*, Ktz. Stones in rapid waters.

H. Ravenelii, n. sp.—*H. terrestre*, rubre fuscescens, in stratum plus minus expansum; trichomatibus plerumque .0005", aerugineis vel aerugineo-fusciscentibus, saepius singulis, nonnunquam geminis vel ternis, rectis vel leviter contortis, aequalibus; articulis diametro duplo triplo brevioribus, irregulariter granulatis; vaginis plantae novae angustis, achrois, pellucidis; aetate provectae amplis, saepe distincte lamellosis, firmis, pulchre luteo-fuscis, superficie laevissimis; diametro cum trichomatibus singulis .0008"—.001"; apice saepe conico.

Pasture grounds, Houston, Texas. (H. W. R.)

12. **Dasygloea**, Thwaites.—*D. amorpha*, Berk. Wet rocks, mountain ravine.

13. **Symploca**, Ktz.—*S. Friesiana*, Ktz. Coll. J. Macoun, Canada.

14. **Inactis**, Ktz.—*I. Austini*, n. sp. Thallis fuscis, nigro-virescentibus, subhemisphericis, convexo-planis; singulis, 2–3 lineas diametro, saepe aggregatis, confluentibus; filamentis firmis, cylindricis, plus minus ramosis, fasciculatim concretis, plerumque distincte articulatis; articulis diametro duplo triplo longioribus, atro-aerugineis; vaginis arctissimis, achrois.

Coll. C. F. Austin. Wet rocks, Little Falls, N. J., 1867.

15. **Entothrix**, Ktz.—*E. grandis*, n. sp. *E. tubulosa*, fusca, basi affixa, caespitosa, rigida; trichomatibus articulatis, plus minus ramosis, 100–150 in funiculum dense contortis, hyalino-lutescentibus, .0003" crassis; vagina crassa, opaca, obscure reticulata. Diam. .030"—.040", circiter semilinearis.

On stones in shallow rivers.

16. **Nostoc**, Vauch.—*N. glomeratum*, Ktz. On filaments of old *Cladophora*. C. L. Anderson, Cal.—*N. pruniforme*, Roth. Pool of limpid water.—*N. cristatum*, Harvey. Abundant on stones; Susquehanna at Harrisburgh; Palisades, N. J. Not, therefore, confined to the high mountain ranges, as suggested by Dr. Wood.—*N. riparium*, Cess. Dripping cliffs, near waterfalls.

17. **Anabaena**, Bory.—*A. stagnalis*, Ktz. Pools.

18. **Trichormus**, Allman.—*T. incurvus*, Allm. Old wood, N. J. (C. F. A.)

19. **Cylindrospermum**, Ktz.—*C. riparium*, Ktz. On aquatic plants.

20. **Sphaerozyga**, Ag.—*S. variabilis*, Ktz. On pond plants.

21. **Chaetococcus**, Ktz.—*Ch. acicularis*, n. sp. *Ch.* in familiis plerumque circularibus, molliter gelatinosis; cellulis numerosis, sphaericis, capitatis cum una acicula, plus minus elongata; cytio-

plasmate initio homoganeo, flavo-viridi, postea granulato, fusciscente. Cellul. .0004"—.0005"; fam. ad. .004".

On culms of *Sagittaria*.

22. **Zonotrichia**, I. Ag.—*Z. haematites*, Rabenh. Stones, Susquehanna River.—*Z. paradoxa*, Wolle. This is the same species described last year, but with evidence of fructification by spherical spores; these form about the middle of the trichoma; in size they fill the diameter of the sheath and when matured are ejected through the open, broken-off end of it.

23. **Mastigothrix**, Ktz.—*M. aeruginea*, Ktz.

M. turgida, n. sp. *M. flagelliformis*, plus minus distincte articulata; articulis plantae novae in partibus basim proximis diametro aequalibus; aetate provectae 3-4-plo brevioribus; apice piliformi, achroa, hyalina, cuspidata, cellulis elongatis, diametro 4-6-plo longioribus; basi turgida, saepius curvata; trichomatibus initio aerugineo, deinde violis vel flavis; cellulis perdurantibus, fulvo-fuscescentibus, compresso-globosis vel concavo-convexis. Basis diam. .0006"—.0008".

Scattered, or in small clusters, in gelatinous coatings on submerged timbers.

24. **Amphithrix**, Ktz.—*A. villosa*, Ktz. River stones.

25. **Mastigonema**, Schwabe.—*M. paradoxum*, Ktz. Wet sides of wooden water box.

26. **Scytonema**, Ag.—*Sc. tomentosum*, Ktz. Wet rocks, Haverstraw, N. Y. (*C. F. A.*)—*Sc. cinereum*, Menegh. Goodwinville, N. J. (*C. F. A.*)—*Sc. Naegelii*, Ktz. Dry rocks, Goodwinville, N. J. (*C. F. A.*)—*Sc. gracile*, Ktz. Wet mountain cliffs.—*Sc. Castelli*, Massal. Abundant on moist wood, flower pots, etc., in greenhouse, Harrisburgh.

Sc. Brandegei, n. sp. *Sc. rupicola*, fusco-atrum, strato firmo; filamentis validissimis, dense intricatis; pseudoramulis plerumque geminis, elongatis, apicibus dilutioribus, pellucidis, dimidio circiter tenuioribus quam filamentis, ad apicem haud attenuatis, obtuso-rotundatis; trichomatibus sordide aerugineis, granulosis, distincte articulatis; articulis diametro subaequalibus, nonnumquam 2-3-plo brevioribus, saepe moniliformibus; vaginis crassis, distincte lamellosis, aureo-fuscis, saepe apertis, trichomata superantibus; cellulis perdurantibus, interjectis, oblongis vel compresso-sphaericis. Diam. trich. cum. vag. .0015"—.0016".

This is the largest of the *Scytonemas* hitherto discovered. It looks akin to *Sc. Hegetschweileri*, Itz., *Sc. tolypotrichoides*, Ktz., and *Sc. cataracta*, Wood, but beside being much thicker, it differs from each in a number of features. Wet rocks, Colo. (*T. S. B.*)

Sc. badium, n. sp. *Scy. strato tenui*, fusciscenti, badio; filamentis suberectis, adpressis, brevibus; pseudoramulis flaccidis, divaricatis, singulis vel geminis; trichomatibus initio dilute aerugineis, modo continuis, modo distincte articulatis, .00008"—.0001" diam., articulis subaequalibus; vaginis amplis luteolo-olivaceis, .00016"—.0003"; cellulis perdurantibus interjectis vel basliaribus, subglobosis vel oblongis. Old wood, Herkimer Co., N. Y. (*C. F. A.*)

This plant has somewhat of an indefinite character, not unlike

Sc. truncicola, Rabenh.; sometimes it assumes the character of a *Tolypothrix*.

27. **Tolypothrix**, Ktz.—*T. Bulanheimii*, Rabenh. Small meadow pools.—*T. Wartmanniana*, Rabenh. Gelatinous coating on old wood under spray of waterfalls.—*T. geminata*, A. Br. Wet cliffs, Pike Co; rather a doubtful species; probably a young growth of *Scytonema*, as suggested also by Dr. Rabenhorst.

T. rupestris, n. sp. *T. strato* late longeque expanso, gelatinoso, viridi-fusco-nigrescente; trichomatibus tenuibus pseudoramulis elongatis, laxe intricatis; internis aerugineis, distincte articulatis, granulosis, diametro aequalibus, ad duplo longioribus; vaginis amplis, achrois vel luteolis; cellulis perdurantibus, subglobosis vel oblongis, 2-3 seriatis. Diam. cum. vag. .00055"; sine. vag. .00032"—.0004". Wet rocks, Delaware Water Gap.

28. **Sirosiphon**, Ktz.—*S. Crameri*, Brügg. Sphagnum swamps, N. J. (C. F. A.) Differs from the typical form in not having the end cells of the trichoma cylindrical, but short and compact, usually 3 or 4 to diameter.—*S. Alpinus*, Ktz. Wet mountain cliff, Pike Co.—*S. coralloides*, Ktz. Dry rocks, N. J. (C. F. A.)—*S. lacustris*, Rabenh. Moist rocks, N. J. (C. F. A.)

CHLOROPHYLLOPHYCEAE.

29. **Pleurococcus**, Menegh.—*P. dissectus*, Naeg. Bark of Pine-trees.

P. lateritius, n. sp. *P. aereus*; *strato* mucoso, fusco-rubro; cellulis globosis et singulis et 2-4-8 in familiis subsphaericis consociatis, plerumque in partes quatuor lineis fuscis dissectis; cytodermate firmo, sordide fusco-rubro, haud lamelloso; cellulis singulis .0003"—.0006"; fam. .0008"—.0013". Old boards, Aiken, S. C. (H. W. R.)

30. **Gloeocystis**, Naeg.—*G. Paroliniana*, Naeg. Moist and dripping rocks.

31. **Palmella**, Lyngb.—*P. uviformis*, Ktz. Outside of wooden tanks.—*P. mucosa*, Ktz. Wet ground.

32. **Tetraspora**, Link.—*T. Stereophysalis*, Ktz. Mountain pools.—*T. fusca*, Breb. Pools.

33. **Hormospora**, Creb.—*H. intermedia*, n. sp. *H. solitaria* aut sparsa; tubulis subamplis, subfirmis; cellulis ante divisionem, diametro sesqui vel duplo longioribus, oblongis, arcte connexis, polo truncatis vel rotundatis; post divisionem primam subsphaericis, sed post divisionem secundam diametro duplo brevioribus, subtiliter granulosis; cytodermate cellularum tenuissimo; filamentis primo .0003"—.0004"; post divisionem cellularum saepe .0006"—.0007".

Pools, not infrequent. Distinguished from *H. geminella*, Wolle, by its thinner filaments, much lighter structure and different mode of division of cells; rarely they divide longitudinally, and give the filaments an undulating outline. *H. pygmaea*, Wolle, has more of a gelatinous structure.

34. **Hydrurus**, Ag.—*H. Ducluzelii*, Ktz. Mountain streamlets.

35. **Chlorococcum**, Fries.—*Ch. olivaceum*, Rabenh.—*Ch. Wimmeri*, Hilse. Dripping mountain cliffs.

36. **Kalodictyon**, novum. genus. Filamenta breviora, moniliformia, extremis in conoebium distensum retioulatum connexis; maculae hexagonae. Propogatio adhuc ignota.

K. margaritatum, n. sp. *K. coenobio* retiformi, indefinito numero hexagonis reticulationibus; filamentis tenuibus, dilute fuscis, persertis cum triangulis et oblongis formis. Formae et triangulae et oblongae subhyalinae margaritae similes, angulis rotundatis et lateribus modice concavis, per centrum omnes persertae, et ordinatae cum triangulis formis in angulis reticulationum, et oblongis formis in lateribus. Coenobium distensum in diluto muco in foliis Potamogetonis. Reticulationes paucis viridibus cellulis irregulariter distributis. Diam. ret. .0025"—.003"; triang. .00064. oblg. .0006"—.0013".

Slow river waters on Potamogeton; a rare and very remarkable plant.

37. **Hydrianum**, Rabenh.—*H. subsessile*, n. sp. *H. crectum*, globosum, ellipticum, subsessile vel inferne in stipitem brevem subito attenuatum; apice nonnumquam late rotundato, saepius in tubuli formam, tubuli plantae diametro duplo breviora; cytoplasmate viridi, initio in corpusculum globosum conglobato, deinde in zoogonidia multa soluto, quae per tubulum apertum singula elabuntur. Diam. .00028"—.0003".

Parasitic on Cladophora, etc.

H. giganteum, n. sp. *H. cellula* stipitata, lanceolata, erecta, vertice obtuse rotundata, demum aperta, medio .010"—.015" diametro, 8-10-plo longiore, utroque polo subequaliter attenuato et subequali diametro, .004"—.005"; cytiodermate cartilagineo, obscure aerugineo, vel fulvo-fuscescente, laevi, basi disciformi dilatata, quae bases multae conjunctae continuum cartilagineum thallum formant in submersis sarmentis; cytoplasmate aquoso, paucis minimis cellulis.

Collected by J. Donnel Smith, head of St. Lucie River, Florida, March, 1877, from submerged twigs.

38. **Chlamydomonas**, Ehrb.—*Ch. pulvisculus*, Ehrb. Greenhouse tank.

DESMIDIACEAE.

39. **Palmagloea**, Ktz.—*P. macrococca*, Ktz. Intermingled with river plants.

40. **Penium**, Breb.—*P. Naegelii*, Breb. Dripping rocks.—*P. margaritaceum*, Breb. Pools.

41. **Sphaerosozma**, Corda.—*S. vertebratum*, Ralfs.—*S. pulchrum*, Bailey. Sluggish waters, Pike Co.

42. **Cosmarium**, Corda.—*C. praemorsum*, Breb.—*C. Biretum*, Breb.—*C. Phaseolus*, Breb.—*C. sportella*, Breb.—*C. latum*, Breb.—*C. moniliforme*, Ralfs. All from pools.—*C. Schliepackeanum*, Grun. Wet rocks.—*C. cruciatum*, Breb. Swamps.

C. irregulare, n. sp. *C. fere* tam longum quam latum, profunde constrictum, sinu mediano lineari; cytiodermate verruculoso; verruculis in series curvatas dispositis; semicellulis diametro plerumque fere duplo longioribus; dorso late et plane truncato; angulis inferioribus rotundatis, indistincte crenulatis, lateribus irregulariter crenatis; crenis inferioribus brevibus sed ad angulos superiores gradatim auctis,

duobus tribusve ultimis amplis sinu profundo. Long. .0026"—.003"; lat. .0024"—.003". Sphagnum swamps. In size and general form this Desmid is near *C. Botrytis* and *C. Ungerianum*, but differs conspicuously in the irregular size of the crenulations, the unusual prominence of those next the outer angles, and the plane truncate apices.

43. **Arthrodesmus**, Ehrb.—*A. octocornus*, Ehrb. Ponds.

ZYGNEMACEAE, ETC.

44. **Spirogyra**, Link.—*Sp. tenuissima*, Ktz.—*Sp. communis*, Ktz. Ponds.—*Sp. Grevilliana*, Ktz. Fresh water pools.

45. **Rhynchonema**, Ktz.—*Rh. vesicatum*, Hassel. Small pools.

46. **Zygnema**, Ag.—*Z. Stellinum*, Ag.—*Z. Vaucheria*, Ag. Quiet waters.

47. **Mesocarpus**, Hassel.—*M. scalaris*, Hass. Dr. Wood quotes this genus, but illustrates a young fruiting specimen of *Pleurocarpus*; hence it may be questioned whether he saw a genuine specimen.—*M. nummuloides*, Hass.—*M. angustus*, Hass. Both frequent in pools, wet rocks, etc.

48. **Vaucheria**, DC.—*V. uncinata*, Ktz.—*V. Dillwinii*, Ag. In addition, I found for the first time the following, quoted by Dr. Wood: *V. geminata*, *V. aversa* and *V. caespitosa*.—*V. reptans*, on last list, should be *repens*.

49. **Prasiola**, Ag.—*P. Mexicana*, Liebm. This interesting plant was collected by Mr. Brandege, attached to stones in rapid waters, in the high mountain regions of Colorado.

50. **Gloeotila**, Ktz.—*G. mucosa*, Ktz. Small pools.

51. **Microspora**, Thuret.—*M. floccosa*. Streamlets of spring water, Penn. and Col.—*M. fugacissima*, Roth. Rain water pool in woodlands.—*M. vulgaris*, Rabenh. Frequent in trenches.—*M. laevis*, Rabenh. Spring waters, here and in Florida.—*M. amoena*, Ktz. Ponds.—*M. punctalis*, Rabenh. Meadow pools, etc.

52. **Conferva**, Link.—*C. affinis*, Ktz. Ponds.—*C. utriculosa*, Ktz. Ponds.—*C. rhyphophila*, Ktz. Slow river waters, Harrisburgh.

53. **Cladophora**, Ktz.—*Cl. flavescens*, Ag. I find a variety in large ponds which agrees well with this species; however, not "submarine."—*Cl. crispata*, Grun., *var. vitrea*, Ktz. Pools.—*Cl. horrida*, Ktz., a *var.* of *Cl. fracta*, Dillw. Yellowstone Springs, Col. Collected by T. C. Porter.—*Cl. insignis*, Ag. Florida. (J. D. Smith.)—*Cl. rigidula*, Ktz. Cold springs.—*Cl. aegagropila*, Linn. Sluggish waters.

Cl. Vaucherioides, n. sp. Cl. sordide viridis; libere natans, aggregata, nubeculas formans, subrigida; ramis subelongatis, secundis, tenuibus; filamentis .004"—.005", articulis longissimis, 12-20-plo longioribus; cytioplasmate granulato, effuso, parietali; cytiodermate laevo, tenui, homoganeo, Vaucheriae simili; septis transversis filamentorum et ramulorum tenuissimis, indistinctis, saepe difficile visibilibus; geniculis non constrictis; ramulorum insertionem non apicali. Small ponds. The thin cytioderm, the very thin division walls, and the long cells characterize this plant as a very distinct species.

54. **Oedogonium**, Link.—*Oed. rostellatum*, Pringsh.—*Oed. vesi-*

catum, DC.—Oed. Pringsheimii, Cramer.—Oed. depressum, Pringsh.—Oed. echinospermum, A. Br.—Oed. rivulare, L. le Clerc. Florida. (J. D. S.)—Oed. affine, Rabenh.—Oed. capillare, Ktz. Submarine waters, Cal. (C. L. Anderson.)—Oed. grande, Ktz.—Oed. Montagnei, F. Mazz.—Oed. hexagonum, Ktz.—Oed. scutatum, Ktz.—Oed. ochroleucum, Ktz. Cal. (C. L. And.)—Oed. fasciatum, Ktz.—Oed. tenellum, Ktz.—Oed. delicatulum, Ktz.

Oed. apiculatum, n. sp. Oed. cellula basili bi-tri-lobata, articulo terminali apiculato; articulis diametro plerumque .0006"—.0008", $2\frac{1}{2}$ –3-plo longioribus, subcylindricis, vel sursum paulum dilatatis, inaequi-crassis, proximis supra oogonium saepe multo minoribus, deinde gradatim dilatatis, saepe .0005" ad .0015"; oogoniis ovalibus modo singulis, modo 2–5 continuis, plerumque superiore polo paulum productis; oosporis ovalibus, diam. .0015", long. .002"—.0025"; antheridiis bi-cellularibus. Pools, and slowly flowing waters.

Oed. setigerum, n. sp. Oed. cellula basali disciformi dilatata, articulo terminali attenuato et plerumque in setam hyalinam longe producta; articulis diametro .0008"—.0012", 3–6-plo longioribus, sursum incrassatis, subclavatis; oogoniis singulis aut pluribus, singulis obovatis, sed si continuis truncato-ellipticis; oosporis in forma oogonii arcte involutis; antheridiis quaternis cellulis.

Pools, fringing old culms, etc.

55. **Bulbochaete**, Ag.—B. setigera, Ag.—B. intermedia, de By.—B. gigantea, Pringsh.—B. crenulata, Pringsh.—B. minor, A. Br.—B. gracilis, Pringsh. Everywhere in stagnant waters; beside those of this vicinity I received specimens from Cal., Colo., S. Car. and Florida.

56. **Hormiscia**, Aresch.—H. zonata, Aresch. Cold spring, Slate region.—H. moniliformis, Ktz. Sphagnum swamps, N. J. (C. F. A.)—H. rigidula, Ktz. Calcareous spring.

57. **Ulothrix**, Ktz.—U. thermarum, Wartm. Trenches of warm waste water.—U. variabilis. Mountain streamlets.—U. stagnorum, Rabenh. Meadow pools.—U. subtilissima, Rabenh. Mountain springs.—U. oscillarima, Ktz. Calcareous springs.

58. **Chroolepus**, Ag.—Ch. odoratum, Ag. Shade trees.—Ch. moniliforme, Naeg. Stones, mountains of New York and New Jersey. (C. F. A.)—Ch. iolithus, Ag. Mt. Washington, N. H. (C. F. A.)—*Ch. corticulum*. I associate this name with a variety of Ch. aureum, particularly common on the trunks of trees in the Southern States, forming a loose, green stratum.

59. **Poterophora**, novum genus. Aërea; fila articulata, varie ramulosa; genicula et cellulae terminalia saepe in cellulis fructiferis urceolatis consistentia.

P. Donnellii, n. sp. P. aërea, strato viridi, molli, intricato vel pulvinulo; filis distincte articulatis, varie ramosis, articulis .0015"—.002" diametro, plerumque duplo triplo longioribus, nonnumquam aequalibus, dilatatis, subsphaericis; ramulis enormibus, modo lateralibus, modo apicalibus, saepe tenuioribus; geniculis et cellulis terminalibus saepe formis urceolatis constructis; novas gemmas gignentibus, primo sphaericas, deinde elongatas, divisas, nova filamenta procreantes.

Bark of trees, Florida. (J. Donnell Smith.)